ABSTRACT OF THE DISCLOSURE

A method and apparatus for gray level dynamic switching. The method is applied to driving a display with at least one pixel. In the method of the present invention, a gray level sequence S_G is provided. S_G sequentially represents two or more desired gray levels $G_o(1),\ldots,G_o(T)$ of the pixel at consecutive time frames 1,…,T and comprises a current gray level $G_o(t)$ and a previous gray level $G_o(t-1)$ corresponding to time frames t and t-1, respectively. Then, the pixel is driven with an optimized driving force Vd(t) to change the forward pixel to a state corresponding to $G_o(t)$ according to $G_o(t)$ and $G_o(t-1)$. In the present invention, the optimized driving voltage Vd(t) is determined by equations of $Vd(t) = V_o(t-1) + ODV$ and $Vd(t) = a \times G_d(m)^3 + b \times G_d(m)^2 + c \times G_d(m) + d$, wherein the voltage ODV is a minimum voltage capable of obtaining one gray level transition in a determined response time.